

What is claimed is:

1. A flip chip package comprising:  
a semiconductor chip having a first side and a second side opposing the first  
side;  
5 a circuit substrate electrically connected to the first side of the semiconductor  
chip;  
a protective cap disposed over the second side of the semiconductor chip, the  
protective cap including at least one portion extending beyond an edge of the  
semiconductor chip.

2. The flip chip package of claim 1, wherein the protective cap includes  
metal.

3. The flip chip package of claim 2, wherein the protective cap is made of  
15 one selected from the group consisting of copper (Cu), copper alloy, aluminum (Al),  
and aluminum alloy.

4. The flip chip package of claim 1, further comprising:  
a plurality of solder bumps to electrically connect the semiconductor chip and  
20 the circuit substrate.

5. The flip chip package of claim 4, further comprising:  
a molding resin layer sealing the electrical connection between the  
semiconductor chip and the circuit substrate.

6. The flip chip package of claim 1, further comprising:  
a plurality of bonding wires to electrically connect the semiconductor chip and  
the circuit substrate.

7. The flip chip package of claim 6, further comprising:  
a molding resin layer sealing the electrical connection between the  
semiconductor chip and the circuit substrate.

8. The flip chip package of claim 1, further comprising:

an adhesion layer disposed between the second side of the semiconductor chip and the protective cap.

5           9. The flip chip package of claim 1, further comprising:  
a molding resin layer sealing the electrical connection between the semiconductor chip and the circuit substrate.

10           10. The flip chip package of claim 9, wherein the molding resin layer engages the extended portion of the protective cap.

11. The flip chip package of claim 9, wherein the molding resin layer at least assists in mounting the protective cap over the second side of the semiconductor chip.

15           12. The flip chip package of claim 9, wherein the protective cap includes a dovetail groove in the extended portion; and the molding resin layer includes a dovetail portion disposed in the dovetail groove.

20           13. The flip chip package of claim 1, further comprising:  
a molding resin layer that engages the protective cap.

25           14. The flip chip package of claim 1, further comprising:  
a molding resin layer that at least assists in mounting the protective cap over the second side of the semiconductor chip.

30           15. The flip chip package of claim 1, further comprising:  
a molding resin layer including a dovetail portion; and wherein the protective cap includes a dovetail groove in the extended portion with the dovetail portion of the molding resin layer disposed therein.

16. The flip chip package of claim 1, further comprising:  
solder balls formed on a surface of the circuit substrate opposite a surface to which the circuit substrate is electrically connected to the semiconductor chip.

17. A method for fabricating a flip chip package, comprising:  
electrically connecting a first side of a semiconductor chip to a circuit  
substrate;

5           clamping a protective cap attached to release tape over a second side of the  
semiconductor chip using a mold, the second side of the semiconductor chip  
opposing the first side;

          forming a molding resin layer that seals the electrical connection between the  
semiconductor chip and the circuit substrate using the mold; and

10           removing the mold and release tape.

18.    The method of claim 17, wherein the protective cap includes metal.

19.    The method of claim 18, wherein the protective cap is made of one  
15   selected from the group consisting of copper (Cu), copper alloy, aluminum (Al), and  
aluminum alloy.

20.    The method of claim 17, wherein the semiconductor chip and the circuit  
substrate are electrically connected to each other via a plurality of solder bumps.

21.    The method of claim 17, wherein the semiconductor chip and the circuit  
substrate are electrically connected to each other via a plurality of bonding wires.

22.    The method of claim 17, further comprising:  
25   attaching an adhesion layer to the protective cap.

23.    The method of claim 22, wherein the clamping step is performed such  
that the adhesion layer is disposed between the second side and the protective cap.

24. The method of claim 17, wherein  
30   the forming step causes the release tape to adhere to the mold; and  
the removing the mold step causes removal of the release tape  
simultaneously with the removal of the mold.

25. The method of claim 24, wherein  
the forming step includes a heat treatment step; and  
the release tape is made of a foaming resin film.

5           26. The method of claim 17, wherein the release tape is made of a foaming  
resin film.

27. The method of claim 17, wherein the protective cap includes at least one  
portion extending beyond an edge of the semiconductor chip.

10           28. The method of claim 27, wherein the forming step forms the molding resin  
such that the molding resin engages the extended portion of the protective cap.

29. The flip chip package of claim 28, wherein  
15           the protective cap includes a dovetail groove in the extended portion; and  
the forming step forms the molding resin layer in the dovetail groove.

30. The flip chip package of claim 17, wherein the forming step forms the  
molding resin layer such that the molding resin layer at least assists in mounting the  
20           protective cap over the second side of the semiconductor chip.